Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
INDUSTRIAL SEWAGE WORKS
NUMBER 9678-8C4QSU
Issue Date: March 14, 2011

Goldcorp Inc. and
Goldcorp Canada Ltd.
Post Office Box, No. 2000
Balmertown, Ontario P0V 1C0

Site Location: Cochenour Complex Mine (Wilanour mine)
21 Mills Avenue
Red Lake Municipality, District of Kenora

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

sewage works for the collection, transmission, treatment and disposal of Tailings Management Area effluent and mine shaft effluent from the Cochenour Complex Mine (also known as Wilanour mine), a mine in a state of Advanced Exploration, located in Cochenour, Ontario near Red Lake, and discharging to the McKenzie Channel of Red Lake, consisting of the following:

Proposed works:

- Dam 2. Reinstatement of the historic Dam #2, located at the west side of the Dam #2 Pond, and at the northeast direction upstream from the Pond #3 within the Tailings Management Area (TMA), with a crest elevation of 372 masl. Reinstatement via installation of a sheet pile core. The conversion of Dam#2 into a water retaining structure will create an additional 200,000 m^3 of water storage in the upper TMA to temporarily provide additional retention time for underground water from the Cochenour Shaft to attenuate ammonia, equipped with:

- Emergency Spillway. The emergency spillway will be installed on Dam #2, with a 12 m-wide, 0.75 m-deep size, within the sheet pile wall to prevent the dam from overtopping. The spillway will have an invert elevation of 371.25 masl., with a freeboard of 0.5 m. and armoured with rip rap protection and an energy dissipation basin at the base of the spillway slope;

- Stop-log Decant Structure. The Stop-log Decant Structure will be separate from the reinstated Dam #2 and operable between elevations 368 and 371 masl., to allow controlled releases to Dam #3 pond when ammonia in the effluent is sufficiently attenuated;

- Buried pipe. Construction of a buried pipe and channel to convey water from the Stop-log Decant

Structure to near the decommissioned Dam#5; and

- North Dyke. Construction of a new dyke to prevent any northward spilling from the proposed impoundment (Dam #2 Pond) when Dam #2 is reinstated. The dyke will be constructed north of all existing tailings deposits to an elevation of 372 masl.

- Dam 6. Removal of the Dam #6, which is an old earth fill berm located north of the TMA. This structure will become redundant once the North Dyke is operational. This removal will allow surface water to be diverted around the redefined TMA; and

all other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works;

all in accordance to drawings, design and construction recommendations contained in the Cochenour Complex - Tailings Management Area Upgrades - Dam #2 Reinstatement. Final Report, prepared by BGC Engineering Inc., of Vancouver, BC, dated May 10, 2010, and reviewed by licensed professionals in Ontario; and

Existing works:

DAMS

- Dam 3, located at the northern end of the Tailings Management Area (TMA), with a crest elevation of 365.5 metres and an emergency spillway with an elevation of 364 metres, including modification to minimize seepage through the Dam and to increase the storage capacity in the TMA;

- one (1) containment berm, located at the southern end of the tailings management area, adjacent to Highway # 125, with a crest elevation of 365 metres.

RAW WATER PUMPING STATION FOR TAILINGS MANAGEMENT AREA

- a raw water pumping station, located at Dam #3, consisting of a pump well and above ground building enclosure, equipped with two (2) submersible pumps each rated at approximately 95 L/s discharging to the Physical-Chemical Treatment Plant;

- a raw water intake screen on the pumping station intake line; and

- a 400 mm diameter pipe from the raw water pumping station to the treatment plant;

RAW WATER PUMPING STATION FOR MINE SHAFT WATER

- two (2) submersible pumps located in the mine shaft of sufficient rated capacity to dewater the Wilanour Mine and maintain the water level in the mine at a sufficient depth to allow underground mining operations following dewatering;

- a 300 mm diameter pipe from the Mine Shaft to the treatment plant.

PHYSICAL-CHEMICAL WASTEWATER TREATMENT SYSTEM

A physical-chemical wastewater treatment system treating either tailings management area effluent, mine shaft water from the Wilanour Mine, or a combination of the two sources, at a maximum treated flow rate of 12,000 m^3/day, consisting of the following:

- a 300 mm diameter in-line mixer;
- one (1) 141 m^3 potassium permanganate contact tank;
- two (2) clarification package treatment units, each rated at 6,000 m^3/day and each consisting of:
  - a rapid mixing basin;
  - an injection chamber;
  - a maturation chamber;
  - a high rate ballasted settling basin complete with inclined tube settlers having a sedimentation rate of approximately 54 m/hr; and
  - three (3) sand recirculation pumps and two (2) hydrocyclones and electrical and mechanical equipment and control;
- a coagulant feed system for either liquid ferric sulphate or ferric chloride, consisting of two (2) 21,200 L coagulant storage tanks and one (1) 3,700 L day tank, including two (2) (one duty, one standby) chemical feed metering pumps with a chemical feed line to the raw water header upstream of the static mixer and to the contact tank;
- pH/Alkalinity adjustment for either soda ash or caustic soda, consisting of one (1) 45,000 L caustic soda storage tank and one (1) 1,500 L day tank, including two (2) (one duty, one standby) chemical feed metering pumps with a chemical feed line to the raw water header upstream of the static mixer;
- an automatic polymer preparation and feed system, consisting of a 500 L mixing tank, a 500 L storage tank, three (3) (two duty, one standby) chemical feed metering pumps with chemical feed lines to the two package treatment units injection chambers and two (2) (one duty, one standby) chemical feed metering pumps with chemical feed lines to the flocculation chamber of the sludge thickener;
- an oxidation feed system for either potassium permanganate or hydrogen peroxide, consisting of two (2) 3,700 L preparation/storage tanks, an eductor system to transfer dry product to the preparation/storage tanks and two (2) (one duty, one standby) chemical feed metering pumps with chemical feed lines to the raw water header upstream of the static mixer;
- one (1) sludge thickening system, consisting of a flocculation basin and a lamella settling zone, with supernatant discharged to the main pond;
- one (1) sludge storage lagoon measuring 275 m x 34 m at the base and 283.4 m x 42.4 m at the outer toe of the berm with a sidewall depth of 1.4 m;

- one (1) continuous turbidity monitor located on the inlet header to the water treatment plant;
- two (2) continuous turbidity monitors located in the clarifiers;
- two (2) continuous pH monitors located in the clarifiers;
- treated water will be discharged by gravity or by pumping through a 500 m long 400 mm diameter pipe from the treatment plant building to the creek past Dam 3, which outlets at McKenzie Channel of Red Lake;
- sludge produced from the clarifiers will be discharged in the short term to the existing tailings pond until dedicated sludge handling facilities are constructed within a reasonable time frame with the objective to limit the amount and duration of sludge discharge to the existing tailings pond; and
- one (1) PLC system connected to the plant PLC located in the treatment plant building.

all other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works;

all in accordance with the following submitted supporting documents:

1. Application dated February 19, 1981, plans drawings, correspondence, appendices and other information, submitted by Robert Dodds Limited;
2. Application for Approval of Industrial Sewage Works dated October 16, 2003 and supporting information submitted by Goldcorp Inc.;
3. Application for Approval of Industrial Sewage Works dated February 12, 2004 and supporting information submitted by Goldcorp Inc.;
4. Application for Approval of Industrial Sewage Works dated October 5, 2005, signed by Randy Wepruk, Environmental Manager and supporting information submitted by Goldcorp Inc.;
5. Assessment of Sludge Handling Options Wilanour Mine Wastewater Treatment Plant Goldcorp Canada Ltd. Cocenhour, Ontario dated February 2007 prepared by CH2MHILL;
6. Wilanour Mine Tailings Management Area Upgrades - Engineering Design for a Ferric Sludge Pond dated June 15, 2007 prepared by BGC Engineering Inc.;
7. Goldcorp Canada Ltd., Wilanour Mine, Tailings Management Area Upgrades - Engineering Design for a Southern Berm and Dam #3 Spillway Modifications dated June 28, 2007, prepared by BGC Engineering Inc.;
8. Application for Approval of Industrial Sewage Works submitted by David Gelderland of Red

Lake Gold Mines dated July 6, 2007;

9. Letter and attachments dated September 5, 2007 from Dave Gelderland and Shawn Hiller of Goldcorp Inc. to Matt Hoffmeister of the Ministry of the Environment;

10. CH2MHILL Memorandum and attachments dated December 17, 2007 from Frank Absi of CH2MHILL to Goldcorp Inc.;

11. Application for Approval of Industrial Sewage Works submitted by David Gelderland of Red Lake Gold Mines dated December 20, 2007;

12. Letter and attachments dated January 16, 2008 from Dave Gelderland and Shawn Hiller of Goldcorp Inc. to Randy Chin of the Ministry of the Environment;

13. Electronic mail and attachments dated January 25, 2008, January 30, 2008 and February 4, 2008;

14. Cochenour-Wilanour Mine Receiving Water Impact Assessment dated February 2008, prepared by Minnow Environmental Inc.;

15. Application for Approval of Industrial Sewage Works submitted by David Gelderland of Red Lake Gold Mines dated July 15, 2010, and supporting documentation;

16. Cochenour Complex - Tailings Management Area Upgrades - Dam #2 Reinstatement. Final Report, prepared by BGC Engineering Inc., of BC, dated May 10, 2010.

17. Letter dated March 2, 2011, from David Gelderland of Goldcorp Canada to Edgardo Tovilla, P.Eng. of the MOE, with final comments to the DRAFT CofA amendment.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"Certificate" means this entire certificate of approval document, issued in accordance with Section 53 of the *Ontario Water Resources Act* , and includes any schedules;

"Director" means any Ministry employee appointed by the Minister pursuant to section 5 of the *Ontario Water Resources Act* ;

"District Manager" means the District Manager/Area Supervisor of the Thunder Bay District Office/Kenora Area Office of the Ministry;

"Existing works" means those portions of the *Works* previously constructed and approved under a certificate of approval;

"Ministry" means the Ontario Ministry of the Environment;

"Owner" means Goldcorp Inc./Goldcorp Canada Ltd. and includes its successors and assignees;

"Proposed works" means the new sewage works included in the application for amending the existing Certificate; and

"*Works* " means the sewage works described in the *Owner's* application, this certificate and in the supporting documentation referred to herein, to the extent approved by this *Certificate* .

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL CONDITION

(1) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the works in accordance with the description given in this Certificate, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Certificate* .

(2) Where there is a conflict between a provision of any submitted document referred to in this *Certificate* and the Conditions of this *Certificate* , the Conditions in this *Certificate* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

(3) The requirements of this *Certificate* are severable. If any requirement of this *Certificate* , or the application of any requirement of this *Certificate* to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of this *Certificate* shall not be affected thereby.

(4) In the event of a conflict between information submitted in support of the application for this *Certificate* , whether referred to in this *Certificate* or not, and any term or condition of this *Certificate* , the term or condition shall prevail.

(5) The requirements specified in this *Certificate* are the requirements under Section 53 of the Ontario Water Resources Act. The issuance of this *Certificate* in no way abrogates the *Owner's* legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

2. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director* , in writing, of any of the following changes within 30 days of the change occurring:

(a) change of *Owner* or operating authority, or both;

(b) change of address of *Owner* or operating authority or address of new owner or operating authority;

(c) change of partners where the *Owner* or operating authority is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Partnerships Registration Act*;

(d) change of name of the corporation where the *Owner* or operator is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" (Form 1, 2 or 3 of O. Reg. 189, R.R.O. 1980, as amended from time to time), filed under the *Corporations Information Act* shall be included in the notification to the *District Manager*;

(2) In the event of any change in ownership of the works, the *Owner* shall notify in writing the succeeding owner of the existence of this *Certificate*, and a copy of such notice shall be forwarded to the *District Manager*.

(3) The *Owner* shall ensure that all communications made pursuant to this condition will refer to this *Certificate's* number.

3. CHANGES IN PROCESSES OR PROCESS MATERIALS

After the commencement of operation of the sewage works the owner shall give written notice to the *Director* of any plans to change the processes or process materials forming a part of the sewage works where the change may materially alter the quantity or quality of the influent to or effluent from the sewage works, and no such change(s) shall be made unless and until the owner applies for and receives the written approval of the *Director* pursuant to section 53 of the *Ontario Water Resources Act*.

4. AS-CONSTRUCTED DRAWINGS

(1) The *Owner* shall prepare within 6 months of substantial completion of construction of the sewage works as approved by this *Certificate*, a complete set of drawings showing the sewage works as approved by this *Certificate* as-constructed and shall amend the drawings from time to time to reflect all changes in or additions to the sewage works.

(2) The *Owner* shall retain the as-constructed drawings, at the location of the sewage works for so long as it is in operation, and shall make them available for inspection by *Ministry* employees upon request.

5. OPERATION AND MAINTENANCE

(1) The *Owner* shall ensure compliance with all the terms and conditions of this *Certificate*. Any non-compliance constitutes a violation of *Ontario Water Resources Act* and is grounds for enforcement.

(2) The *Owner* shall furnish to the *Regional Director* any information which the *Regional Director* may request concerning compliance with this *Certificate*, pursuant to Section 31 of the *Ontario Water*

Resources Act and copies of any records required to be kept by this *Certificate* .

(3) The *Owner* shall take all reasonable steps to minimize any adverse impact to surface or ground waters resulting from non-compliance with the effluent requirements specified in this certificate including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the discharge in respect of which there is non-compliance.

(4) The *Owner* shall prepare or update an operations manual within six (6) months of the date of issuance of this *Certificate* , that includes, but not necessarily limited to, the following information:

(a) operating procedures for routine operation of the works;

(b) inspection programs, including frequency of inspection, for the works and the methods or tests employed to detect when maintenance is necessary;

(c) repair and maintenance programs, including the frequency of repair and maintenance for the works;

(d) contingency plans and procedures for dealing with potential spill, bypasses and any other abnormal situations and for notifying the *District manager* ; and

(e) complaint procedures for receiving and responding to public complaints.

(5) The *Owner* shall maintain the operations manual up to date through revisions undertaken from time to time and retain a copy at the location of the sewage works. Upon request, the *Owner* shall make the manual available for inspection and copying by *Ministry* personnel.

(6) The *Owner* shall ensure that at all times, the sewage works and related equipment and appurtenances which are installed or used to achieve compliance with this *Certificate* are properly operated and maintained.

(7) In furtherance of, but without limiting the generality of, the obligation imposed by subsection (1) the owner shall ensure that:

(a) funding, staffing, training of staff, laboratory and process controls, quality assurance and quality control procedures of or in relation to the sewage works are adequate to achieve compliance with this *Certificate* ; and,

(b) equipment and material are kept on hand and in good repair for immediate use in the event of:

(i) upset;

(ii) bypass;

(iii) abnormal loss of any product, by-product, intermediate product, oil, solvent, waste

material or any other polluting substance into the environment or interior of any building; or,

(iv) spill within the meaning of Part X of the *Environmental Protection Act* , and staff are trained in the use of said equipment and material and in the methods and procedures to be employed upon the occurrence of such an event.

6. EFFLUENT OBJECTIVES

(1) The *Owner* shall use best efforts to design, construct and operate the works with the objective that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the *Works* .

Table 1 - Effluent Objectives

Effluent Parameter	**Concentration Objective** (milligrams per litre unless otherwise indicated)
Total Suspended Solids	10
Arsenic	0.05
Copper	0.005
Iron	1.25
Nickel	0.025
Lead	0.025
Zinc	0.03

(2) As a further effluent objective, the *Owner* shall use best efforts to maintain the pH of the effluent from the works within the range of 6.5 to 8.5, inclusive, at all times.

(3) The *Owner* shall include in all reports submitted in accordance with Condition 9, a summary of the efforts made and results achieved under this Condition.

7. EFFLUENT LIMITS

(1) The *Owner* shall design, construct, operate and maintain the works such that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the *Works* .

Table 2 - Effluent Limits		
Effluent Parameter	**Maximum Daily Concentration** (milligrams per litre unless otherwise indicated)	**Monthly Average Concentration** (milligrams per litre unless otherwise indicated)
Column 1	Column 2	Column 3
Total Suspended Solids	30	15
Arsenic	-	0.25
Copper	-	0.3
Nickel	-	0.5
Lead	-	0.2
Zinc	-	0.5
Iron	3	2
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

(2) The effluent from the *Works* shall not be acutely lethal to Daphnia magna or Rainbow Trout. The *Owner* shall control the quality of the effluent stream to ensure that each rainbow trout acute lethality test and each Daphnia magna acute lethality test performed on any grab sample of effluent results in mortality of no more than 50 per cent of the test organisms in 100 per cent effluent.

(3) For the purposes of determining compliance with and enforcing subsection (1):

(a) Non-compliance with respect to any parameter stated in column 1 of Table 2 is deemed to have occurred when the concentration of any single grab sample is greater than the corresponding Maximum Daily Concentration set out in column 2 of Table 2 in subsection (1); and the sample represents a day when discharge of effluent to the TMA creek and McKenzie Channel occurred.

(b) In addition to subsection (3)a above, non-compliance with respect to any parameter stated in column 1 of Table 2 is deemed to have occurred when the arithmetic mean concentration of all samples taken in a month is greater than the corresponding Monthly Average Concentration set out in column 3 of Table 2 in subsection (1); and the sample represents a day when discharge of the TMA creek and McKenzie Channel occurred.

(c) Non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the indicated range; and the sample represents a day when discharge of effluent to TMA Creek and McKenzie Channel occurred.

(d) Non-compliance with respect to acutely lethality to Daphnia magna or Rainbow Trout is deemed to have occurred when acute lethality test performed on any grab sample of effluent results in mortality of more than 50 per cent of the test organisms in 100 per cent effluent; and the sample represents a day when discharge of effluent to TMA Creek and McKenzie Channel occurred.

(4) The *Owner* shall include in all routine reports submitted in accordance with Condition 9, a summary

of the efforts made and results achieved under subsection (1).

8. MONITORING AND RECORDING

The *Owner* shall carry out and maintain the following monitoring program:

(1) Any of the sampling locations as set out in subsection (2) may be changed or abandoned and new locations may be added following commencement of monitoring if, in the opinion of the *District Manager* , it is necessary to do so to ensure that representative samples are being collected.

(2) The locations named below shall be sampled at the sampling points named below, in accordance with the measurement frequency and sample type specified for each parameter named below:

Surface Water Monitoring

Table 3 - Influent Monitoring

Sample Location: Samples to be collected at the raw water pumping station or at the inlet of the treatment plant.

Parameters	Sample Type	Minimum Frequency
Arsenic	Grab	3 times per week
Copper	Grab	Monthly
Nickel	Grab	Monthly
Lead	Grab	Monthly
Zinc	Grab	Monthly
Iron	Grab	3 times per week
pH	Grab	3 times per week

Table 4 - Effluent Monitoring

Sample Location: Samples of the effluent discharge to be collected at the outlet of the clarifier or at Dam 3

Parameters	Sample Type	Minimum Frequency
Total Suspended Solids	Grab	3 times per week
Total Dissolved Solids	Grab	3 times per week
Total Ammonia Nitrogen (Ammonia + Ammonium)	Grab	Monthly
Unionized Ammonia	Grab	Monthly
Nitrate Nitrogen	Grab	Monthly
Total Phosphorus	Grab	Monthly
Sulphates	Grab	Weekly
Manganese	Grab	Monthly
Hardness	Grab	Monthly
Arsenic	Grab	3 times per week
Copper	Grab	Monthly
Nickel	Grab	Monthly

Lead	Grab	Monthly
Zinc	Grab	Monthly
Iron	Grab	3 times per week
Mercury	Grab	Annually
Acute Lethality to Rainbow Trout	Grab	Twice Monthly
Acute Lethality to Daphnia magna	Grab	Twice Monthly
Chronic Lethality to Fathead Minnow	Grab	Once - Upon initial discharge
Chlorides	Grab	3 times per week
Dissolved Oxygen	Grab/Probe	Monthly
pH	Grab/Probe	3 times per week
Temperature	Grab/Probe	3 times per week

Table 5 - Receiver Monitoring

Sample Location: Samples to be collected at McKenzie Channel of Red Lake at the TMA creek outlet

Parameters	Sample Type	Minimum Frequency
Total Suspended Solids	Grab	Monthly
Total Dissolved Solids	Grab	Monthly
Total Ammonia Nitrogen (Ammonia + Ammonium)	Grab	Monthly
Unionized Ammonia	Grab	Monthly
Nitrate Nitrogen	Grab	Monthly
Total Phosphorus	Grab	Monthly
Sulphates	Grab	Monthly
Manganese	Grab	Monthly
Hardness	Grab	Monthly
Arsenic	Grab	Monthly
Copper	Grab	Monthly
Nickel	Grab	Monthly
Lead	Grab	Monthly
Zinc	Grab	Monthly
Iron	Grab	Monthly
Chlorides	Grab	Monthly
Dissolved Oxygen	Grab/Probe	Monthly
pH	Grab/Probe	Monthly
Temperature	Grab/Probe	Monthly

Dam #6 Diversion Water

Upon removal of the Dam #6 structure the Owner shall immediately commence a monthly monitoring program for a minimum of twelve (12) months based on the parameters set out in Table 5 in this Condition. Samples are to be taken when water is flowing, i.e. not during freeze-up / ice cover.

Groundwater Monitoring

(a) Groundwater samples shall be collected twice per year, in the spring and in late summer or early fall (a minimum of three months apart) from the following wells:

CM-3, CM-4, DH-03-8A, DH-03-8B, DH-03-8C, MW03-15, MW03-17A, MW03-17B, MW03-18, MW07-02, MW07-03, MW07-04 and MW07-05.

(b) In addition, groundwater samples shall be collected annually in spring season from the following wells:

CM-2, CM-5, CM-6, CM-9, MW03-12, MW03-13, MW03-14, MW03-16, MW03-19, MW03-20, and MW03-20D.

(c) The samples shall be analyzed for the following parameters: pH, total suspended solids, total dissolved solids, total organic carbon, total ammonia nitrogen, total phosphorus, hardness, arsenic, copper, nickel, lead, zinc, full ICP metals scan, alkalinity, nitrate, sulphate and chloride.

(3) The time interval between consecutive 3 times per week weekly, monthly and quarterly samples shall be, at least, 1, 4, 15, and 45 days respectively.

(4) The methods and protocols for sampling, analysis, toxicity testing, and recording shall conform, in order or precedence, to the methods and protocols specified in the following:

(a) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), as amended from time to time by more recently published editions;

(b) the publication "Standard Methods for the Examination of Water and Wastewater" 21st edition) as amended from time to time by more recently published editions;

(c) the Environment Canada publications "Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout"(July 1990), "Reference Method for Determining Acute Lethality of Effluents to Daphnia magna" (July 1990) and "Biological Test Method:Test of Larval Growth and Survival Using Fathead Minnows" (February 1992);

(d) with respect to any parameters not mentioned in documents (a) - (c), the written approval of the *District Manager* shall be obtained prior to sampling.

(5) The sub-lethality toxicity testing, using Fathead Minnows outlined in Table 4 shall be undertaken once, upon the initial discharge of effluent when total iron concentrations are within 1.25 and 2.4 milligrams per litre, and shall determine the iron concentration causing a 25% reduction (IC_{25}) in growth. In the event that the IC_{25} is less than the monthly average effluent limit for total iron, the *Owner* shall develop an abatement plan, in consultation with the *District Manager*, to correct this problem.

(6) The acute lethality testing using Rainbow Trout and Daphnia magna outlined in Table 4 shall be undertaken twice each month. If sublethal toxicity testing pursuant to subsection (5) confirms that the IC_{25} exceeds the monthly average effluent limit for total iron, the monitoring frequency may then be modified to once a month.

(7) The *Owner* shall install, maintain and operate an instantaneous flow measuring device, to measure flow during any discharge, with a totalizer to obtain cumulative flows over a stipulated time period,

(8) After twelve (12) months of effluent monitoring under Subsection (2), with no exceedences of the objective set out in Condition 6, the effluent limits and monitoring frequency specified in Conditions 7 and 8 may be changed to such frequency as the *District Manager* may specify in writing from time to time, provided that the new specified frequency is never less than annual.

(9) The following information shall be retained by the *Owner* for a period of at least three (3) years from the date of preparation:

(a) Laboratory analytical results of the samples taken pursuant to the sampling program set out in Condition 8.

(b) Sewage works operation, performance and maintenance results, including logbooks associated with the operation, performance and maintenance of the sewage works.

(10) The parameters and frequency of monitoring and sampling stated above in this Condition may be modified by the *District Manager* in writing from time to time.

9. REPORTING

(1) The *Owner* shall prepare and submit to the *District Manager* a monthly activity report by the last day of the month following the month being reported upon. The first monthly activity report shall cover the first two months following the date of issuance of this *Certificate* and monthly activity reports shall be submitted to cover successive monthly intervals thereafter. (Preparation of the monthly activity reports will be simplified by maintaining a logbook for the operation and performance monitoring of the settling pond in which all relevant occurrences are recorded in chronological order). The monthly activity report shall contain the following in a format that is acceptable to the *District Manager*:

(a) estimate of total effluent discharged from the sewage works during the reporting period.

(b) status of storage capacity occupied and remaining in sewage works system,

(c) a summary and interpretation of all monitoring data collected relative to the sewage works facility during the period being reported upon, including statistical evaluation (minimum, maximum, average), evaluation of compliance with this *Certificate* and *Ministry* guidelines,

(d) a description of any operating problems and the corrective action taken during the reporting period, including anomalies in data due to changes in, or upsets of the sewage works, and

(e) a summary of all information generated under the requirements of Condition No. 8.

(2) The *Owner* shall prepare, and submit to the *District Manager* , a performance report, on an annual basis, by March 31st for the previous calendar year. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:

(a) a summary analysis/interpretation of all monitoring data (effluent and receiving environment) and a comparison to the effluent limits outlined in Condition No. 7, including an overview of the success and adequacy of the *Works* ;

(b) a description of any operating problems encountered and corrective actions taken;

(c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works* ;

(d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;

(e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment;

(f) all flow data and arsenic loading calculations; and

(g) any other information the *District Manager* requires from time to time.

(3) The *Owner* shall prepare, and submit to the *District Manager* , a monitoring report detailing the groundwater monitoring program delineated in Condition 8 and the sampling results of every two years. The first report shall be submitted by March 31, 2008, and subsequent reports shall be submitted every second year thereafter. The monitoring program must be prepared by a licensed Professional Geoscientist or a Professional Engineer qualified in the field of hydrogeology. The monitoring report shall, as a minimum, include the following information:

(a) a site plan or plans of the entire site illustrating significant site features such as rivers, seeps, ponds, ditches, collection and treatment facilities, and roadways as well as sampling locations;

(b) a location map illustrating the site relative to nearby potentially sensitive groundwater/surface

water features (lakes, streams, wells, etc.);

(c) a water table contour map;

(d) stratigraphic cross-sections that clearly illustrate the subsurface distribution of geological materials;

(e) borehole logs of all monitoring wells;

(f) tables illustrating historical water chemistry and water level data;

(g) graphs illustrating historical water quality trends with time for all of the key analytical parameters;

(h) Piper or Durov plots of the relationship of the groundwater quality inside and outside of the tailings area;

(i) an assessment of monitoring data to evaluate the attenuation processes and the potential impact on Red Lake with consideration to the Provincial Water Quality Objectives (PWQOs);

(j) recommendations for future monitoring and/or remedial actions; and

(k) description of the field sampling protocols and QA/QC measures.

(4) The *Owner* shall conduct a Biological Assessment of the TMA creek and the near-shore area of McKenzie Channel of Red Lake once every three years, the first study to be undertaken in 2007, that shall include, but not be limited to:

(a) the determination of the benthic, fisheries and plant communities, (species and abundance), and quantitative measures such that any significant short or long-term changes may be evident and

(b) an assessment of the impact of iron floc in the stream and near shore sediments and whether it has any effect on the fish and benthos.

(5) The *Owner* shall submit the Biological Assessment report to the *District Manager* by March 31 of the following year in which the field work was conducted. After the submission of at least two reports, the frequency of the biological assessments may be changed to such frequency as the *District Manager* may specify in writing from time to time.

(6) The *Owner* shall develop, document and submit to *District Manager* before December 31, 2012, a formal strategy to address long term storage of the sludge.

(7) The *Owner* shall develop, document and submit to *District Manager* before December 31, 2008, an interim strategy to address short-term or emergency storage of the sludge.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Certificate* and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. In addition, this Condition is included to emphasize that the issuance of the certificate does not diminish any other statutory and regulatory obligations to which the owner is subject in the construction, maintenance and operation of the sewage works.

2. Condition 2 is included to ensure that the *Ministry* records are kept accurate and current with respect to approved works and to ensure that subsequent owners of the works are made aware of the *Certificate* and continue to operate the works in compliance with it.

3. Condition 3 is included to ensure that the works is operated in accordance with the information submitted by the owner relating to the process and materials which are served by the *Works*, and to ensure that any contemplated changes in them which could potentially affect the characteristics of effluent from the *Works* will be properly reviewed and approved.

4. Condition 4 is included to enable the owner to record and the *Ministry* to verify that the sewage works are constructed and operated in accordance with the *Certificate*.

5. Condition 5 is included to emphasize that the *Owner* has an ongoing duty to mitigate any adverse impacts resulting from non-compliance with the *Certificate*. This Condition is included to ensure that the sewage works will be operated, maintained, funded, staffed and equipped in a manner enabling compliance with the terms and conditions of this *Certificate*, such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. Condition 5 is also included to ensure that a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the owner and made available to the *Ministry*. Such a manual is an integral part of the operation of the *Works*. Its compilation and use should assist the owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for *Ministry* staff when reviewing the *Owner's* operation of the *Works*.

6. Condition 6 is imposed to establish non-enforceable effluent quality objectives which the *Owner* is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliance limits of Condition 7 are exceeded.

7. Condition 7 is imposed to ensure that the effluent discharged from the sewage works to TMA creek and McKenzie Channel meets the *Ministry's* effluent quality requirements as specified on a continual basis thus minimizing environmental impact to the receiver.

8. Conditions 8 is included to require the *Owner* to demonstrate on a continual basis that the quality and

quantity of the effluent from the approved sewage works is consistent with the design objectives and effluent limits specified in the *Certificate* and that the approved sewage works does not cause any impairment to the receiving watercourse.

9. Condition 9 is included to provide a performance record for future references and to ensure that the *Ministry* is made aware of problems as they arise, so that the *Ministry* can work with the *Owner* in resolving the problems in a timely manner.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 8516-7B3LZP issued on April 2, 2008.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, S.O. 1993, Chapter 28, the Environmental Commissioner, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary* Environmental Review Tribunal 655 Bay Street, 15th Floor Toronto, Ontario M5G 1E5	AND	The Environmental Commissioner 1075 Bay Street, 6th Floor Suite 605 Toronto, Ontario M5S 2B1	AND	The Director Section 53, *Ontario Water Resources Act* Ministry of the Environment 2 St. Clair Avenue West, Floor 12A Toronto, Ontario M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

This instrument is subject to Section 38 of the Environmental Bill of Rights, that allows residents of

Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at www.ene.gov.on.ca, you can determine when the leave to appeal period ends.

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 14th day of March, 2011

Ian Parrott, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

ET/

c: District Manager, MOE Kenora Area Office
S. Sriskandakumar, BGC Engineering Inc.